CLEVELAND-CLIFFS INC.
Cleveland-Cliffs Minorca Mine Inc.
5950 Old Highway 53 N., Virginia, MN 55792
P 218.749.5910 clevelandcliffs.com

July 29, 2021

Regional Administrator
Air and Radiation Division
U.S. Environmental Protection Agency, Region 5 (A-18J)
77 West Jackson Boulevard
Chicago, IL 60604

Re: Cleveland-Cliffs Minorca Mine Inc.
Semiannual Compliance Report for the 1st Half of 2021
Federal Implementation Plan for Regional Haze (FIP)

On behalf of Cleveland-Cliffs Minorca Mine (Minorca), I am submitting the enclosed Semiannual Compliance Report for the Excess Emissions and Monitoring System Performance Reports for the 1st Half of 2021 as required by 40 CFR 52.1235(e)(5-6).

It should be noted that while the continuous NO_X and SO_2 emissions monitoring requirements of the FIP are in effect, Minorca is not yet subject to the NO_X emission limitation specified by 40 CFR 52.1235(b)(1)(v).40 CFR 52.1235(b)(1)(v)(A) specifies that the NO_X limitation will become enforceable "…55 months after May 12, 2016 and only after EPA's confirmation or modification of the emission limit…", which has not yet occurred.

Minorca has also submitted the quarterly CEMS reports required by 40 CFR 52.1235(e)(7) on July 29, 2021. Some information specified within this report may refer you to this quarterly CEMS report and the previous CEMS report for the first quarter of 2021 submitted April 21, 2021 for additional details.

Minorca submitted a revision of the 38.16 lb SO_2/hr on a 30-day rolling average limit in accordance with 40 CFR 52.1235(b)(2)(v) on April 6, 2018. That section of the FIP provides that Minorca "may calculate a revised SO_2 limit based on one year of hourly CEMS emissions data reported in lbs SO_2/hr and submit such limit, calculations, and CEMS data to EPA." This provision to modify the SO_2 limit exists because EPA recognized that the initial SO_2 limit was based on "limited stack test data" (78 Fed. Reg. 8718) and did not reflect the variability of Minorca's operations. The revised emission limit calculation methodology follows the provisions of 40 CFR 52.1235(b)(2)(v) and results in an updated emission limit of 58.64 lbs SO2/hr based on a 30-day rolling average (prior to adjusting to account for operating levels of the Minorca furnace which were less than capacity during the data collection period). Adjusting to reflect the emissions associated with operation of the furnace at capacity using the above equation results in a limit of 73.79 lbs SO2/hr based on a 30-day rolling average. The revised limit became effective on the April 6, 2018 date of submittal of the limit revision package.

Please contact Jaime Johnson, Minorca's Environmental Manager, at (218) 305-3337 should you have any questions or comments regarding this report.

Sincerely,

Robb Peterson
Operations Manager

Enclosed: Semiannual Compliance Report for the Regional Haze FIP covering the 1st Half of 2021

cc: Jaime Johnson (Cleveland-Cliffs Minorca Mine Inc.)
Scott Gischia (Cleveland-Cliffs Inc.)

40 CFR 52 Subpart Y
Approval and Promulgation of Implementation Plans - Minnesota

52.1235 – Regional Haze

Semi-Annual Report (52.1235(e)(5)-(6))

Company Name (52.1235(e)(6)(i)): Cleveland-Cliffs Minorca Mine Inc.		**Beginning date of reporting period (52.1235(e)(6)(iii)):** 1/1/2021
Company Address: 5950 Old Highway 53 North P.O. Box 1 Virginia, MN 55792		**Ending date of reporting period (52.1235(e)(6)(iii)):** 6/30/2021
Person to Contact Regarding Submittal: Jaime Johnson	**Mailing Address:** Same as above	**Telephone No:** 218-305-3337

Identification of the process unit, control devices, and CEMS covered by the compliance report. (52.1235(e)(6)(iv)):

Process Unit:

- Indurating Furnace (EU 026)

Control Devices:

- Venturi Scrubbers (CE 014, CE 015, CE 016 and CE 017)

CEMS:

- SO_2 CEMS (EU026-SO_2)
- NO_x CEMS (EU026-NO_x)

Attachments	
A	Records of Startups and Shutdowns (52.1235(e)(6)(v))
B	Records of Malfunctions (52.1235(e)(6)(v))
C	Deviations (52.1235(e)(6)(vi)) • Emissions in Excess of Applicable Emission Standards • Deviations of Requirement to Continuously Operate Emissions Control Device • Deviations of Requirement to Continuously Operate CEMS • Deviations for Failure to Maintain Records or Submit Reports

Certification

Name, Title and Signature of Responsible Official Who is Certifying the Truth, Accuracy and Completeness of the content of the Report (52.1235(e)(6)(ii)):

I certify, based on information and belief formed after reasonable inquiry, that the statements and information in this document are true, accurate, and complete.

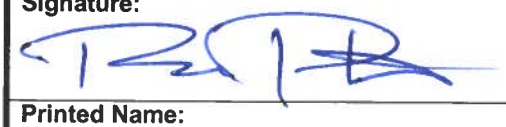
Signature: 	**Date of report:** 7/28/21
Printed Name: Robb Peterson	**Title:** Operations Manager

Table A Records of Startups and Shutdowns (52.1235(e)(6)(v))						
ID#	**Description**	**Startup or Shutdown**	**Start**	**End**	**Actions Taken to Minimize or Eliminate Emissions**	**Consistent with SSM Plan?**
EU 026	Indurating Machine	Shutdown	2/1/2021 7:10	2/1/2021 8:17	Scrubbers were operated in compliance with parametric limits until pellet feed to the furnace stopped and natural gas fuel combustion ceased.	Y
		Startup	2/2/2021 15:33	2/3/2021 18:35	Scrubbers were started up consistent with the SSM Plan. There were no exceedances of the SO_2 emission limitation.	Y
		Shutdown	4/14/2021 14:41	4/14/2021 15:59	Scrubbers were operated in compliance with parametric limits until pellet feed to the furnace stopped and natural gas fuel combustion ceased.	Y
		Startup	4/14/2021 17:39	4/14/2021 20:34	Scrubbers were never fully shut down during the furnace shutdown. The furnace was relit and the pellet bed started up following a warm-up period for the furnace.	Y
		Shutdown	4/19/2021 04:35	4/19/2021 05:29	Scrubbers were operated in compliance with parametric limits until pellet feed to the furnace stopped and natural gas fuel combustion ceased.	Y
		Startup	4/24/2021 00:24	4/25/2021 04:58	Scrubbers were started up consistent with the SSM Plan. There were no exceedances of the SO_2 emission limitation.	Y
		Shutdown	5/29/2021 01:59	5/29/2021 04:25	Scrubbers were operated in compliance with parametric limits until pellet feed to the furnace stopped and natural gas fuel combustion ceased.	Y
		Startup	05/29/2021 07:12	5/29/2021 14:05	Scrubbers were started up consistent with the SSM Plan. There were no exceedances of the SO2 emission limitation.	Y
CE 014	Indurating Machine Scrubber A Low Efficiency SO_2 Scrubber	Shutdown	02/01/2021 08:25	2/1/2021 09:56	Scrubbers were operated in compliance with parametric limits until furnace pellet bed stopped and fuel combustion ceased.	Y
		Startup	2/2/2021 14:56	2/2/2021 15:41	Scrubbers were started up consistent with the SSM Plan. There were no exceedances of the SO_2 emission limitation.	Y
		Shutdown	4/19/2021 05:41	4/19/2021 06:56	Scrubbers were operated in compliance with parametric limits until furnace pellet bed stopped and fuel combustion ceased.	Y
		Startup	04/23/2021 22:40	04/24/2021 00:40	Scrubbers were started up consistent with the SSM Plan. There were no exceedances of the SO_2 emission limitation.	Y
CE 015	Indurating Machine Scrubber B	Shutdown	02/01/2021 08:25	2/1/2021 09:56	Scrubbers were operated in compliance with parametric limits until furnace pellet bed stopped and fuel combustion ceased.	Y

Table A Records of Startups and Shutdowns (52.1235(e)(6)(v))						
ID#	**Description**	**Startup or Shutdown**	**Start**	**End**	**Actions Taken to Minimize or Eliminate Emissions**	**Consistent with SSM Plan?**
	Low Efficiency SO_2 Scrubber	Startup	2/2/2021 14:56	2/2/2021 15:41	Scrubbers were started up consistent with the SSM Plan. There were no exceedances of the SO_2 emission limitation.	Y
		Shutdown	4/19/2021 05:41	4/19/2021 06:56	Scrubbers were operated in compliance with parametric limits until furnace pellet bed stopped and fuel combustion ceased.	Y
		Startup	04/23/2021 22:40	04/24/2021 00:40	Scrubbers were started up consistent with the SSM Plan. There were no exceedances of the SO_2 emission limitation.	Y
CE 016	Indurating Machine Scrubber C Low Efficiency SO_2 Scrubber	Shutdown	4/19/2021 05:41	4/19/2021 06:56	Scrubbers were operated in compliance with parametric limits until furnace pellet bed stopped and fuel combustion ceased.	Y
		Startup	04/23/2021 22:40	04/24/2021 00:40	Scrubbers were started up consistent with the SSM Plan. There were no exceedances of the SO_2 emission limitation.	Y
CE 017	Indurating Machine Scrubber D Low Efficiency SO_2 Scrubber	Shutdown	02/01/2021 08:25	2/1/2021 09:56	Scrubbers were operated in compliance with parametric limits until furnace pellet bed stopped and fuel combustion ceased.	Y
		Startup	2/2/2021 14:56	2/2/2021 15:41	Scrubbers were started up consistent with the SSM Plan. There were no exceedances of the SO_2 emission limitation.	Y
		Shutdown	4/19/2021 05:41	4/19/2021 06:56	Scrubbers were operated in compliance with parametric limits until furnace pellet bed stopped and fuel combustion ceased.	Y
		Startup	04/23/2021 22:40	04/24/2021 00:40	Scrubbers were started up consistent with the SSM Plan. There were no exceedances of the SO_2 emission limitation.	Y
EU026 SO_2 EU026 NO_X	Indurating Furnace CEMS: • SO_2 CEMS • NO_X CEMS	N/A	N/A	N/A	The CEMS operated continuously while the furnace was in operation (combusting natural gas) except for the periods specified within the quarterly excess emissions and monitoring system performance reports required by 52.1235(e)(7).	N/A

Table B
Records of Malfunctions (52.1235(e)(6)(v))

					Malfunction Dates				Malfunction Category (days)									
CE / GP	CE Description	Source Operating Time (Hours)	Parameter	Operating Limit	Value During Malfunction	Start	End	Time (days)	Startup	Shutdown	Control Equipment Problem	Process Problem	Other Known Problem	Unknown Problem	SSM Procedures Followed?	Malfunction Total Time (days)	Malfunction Time (%)	Actions Taken to Minimize or Eliminate Emissions
CE 014	Indurating Machine Scrubber A	4,192	dP	≥ 1.8 in H2O	---	---	---	---	---	---	---	---	---	---	---			---
																0	0.0%	
CE 014	Indurating Machine Scrubber A	4,192	Water Flow	≥ 803 gpm	---	---	---	---	---	---	---	---	---	---	---			---
																0	0.0%	
CE 015	Indurating Machine Scrubber B	4,192	dP	≥ 2.2 in H2O	---	---	---	---	---	---	---	---	---	---	---			---
																0	0.0%	
CE 015	Indurating Machine Scrubber B	4,192	Water Flow	≥ 814 gpm	---	---	---	---	---	---	---	---	---	---	---			---
																0	0.0%	
CE 016	Indurating Machine Scrubber C	4,192	dP	≥ 1.9 in H2O	---	---	---	---	---	---	---	---	---	---	---			---
																0	0.0%	
CE 016	Indurating Machine Scrubber C	4,192	Water Flow	≥ 795 gpm	---	---	---	---	---	---	---	---	---	---	---			---
																0	0.0%	
CE 017	Indurating Machine Scrubber D	4,192	dP	≥ 2.2 in H2O	---	---	---	---	---	---	---	---	---	---	---			---
																0	0.0%	
CE 017	Indurating Machine Scrubber D	4,192	Water Flow	≥ 847 gpm	---	---	---	---	---	---	---	---	---	---	---			---
																0	0.0%	
EU026 SO_2 EU026 NO_X	Indurating Furnace CEMS: • SO_2 CEMS • NO_X CEMS	4,192	CEMS Uptime	---	---	---	---	---	---	---	---	---	---	---	---	---	---	The CEMS operated continuously except for the periods specified within the quarterly excess emissions and monitoring system performance reports required by 52.1235(e)(7).

Table C Deviations (52.1235(e)(6)(vi))							
Deviation Type				Description	Cause(s)	Action to Address Deviation	Action to Avoid a Reoccurrence
Excess Emissions	Continuous Operation of Pollution Control Equipment	Continuous Operation of CEMS	Maintaining Records or Submitting Reports				
There were no identified deviations from the requirements of 52.1235 within the reporting period covered by this report.							